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Mohnish Anumala

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EXAMINER

JEAN GILLES, JUDE

ART UNIT

PAPER NUMBER

2143

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/670,932	Applicant(s) ANUMALA, MOHNISH	
	Examiner JUDE J. JEAN GILLES	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in Reply to communication filed on 01/28/2008.

Response to Amendment

1. Claims 1, 13, and 25 were amended. No new claim has been added. Claims 1-25 are pending. Claims 1-25 represent a method and apparatus for an "ENTERPRISE NETWORK SERVICES ARCHITECTURE."

Response to Arguments

2. Applicant's arguments with respect to claims 1, 13, and 25 have been carefully considered, but are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the following new ground of rejection as explained here below, necessitated by Applicant substantial amendment (i.e., "said communication paths within each of said forwarding domains together providing an end to end communication path for a single virtual connection across all of said forwarding domains, such that wherein said communication paths within said forwarding domains are each required to provides network performance for communications over said virtual connection reflecting said at least one end to end network service parameter within their respective forwarding domains") to the claims which significantly affected the scope thereof.

The dependent claims stand rejected as articulated in the First Office Action and all objections not addressed in Applicant's response are herein reiterated.

In response to Applicant's arguments, 37 CFR § 1.11(c) requires applicant to "clearly point out the patentable novelty which he or she thinks the claims present in

view of the state of the art disclosed by the references cited or the objections made. He or she must show the amendments avoid such references or objections.”

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nykanen et al (hereinafter Nykanen), Pub. No. US 2003/0133554 A1 and Rosu et al (hereinafter Rosu), Pub. No. US 2002/0114281 A1, in further view of Graupner, U.S. Pub. No. 2004/0179481 A1.

Regarding **claim 1**, Nykanen teaches the invention substantially as claimed.

Nykanen discloses a method for providing network services in an enterprise network, wherein said enterprise network includes a plurality of forwarding domains (*figs. 2 & 3*), comprising:

obtaining at least one end to end network service parameter from an application program (*figs. 2, items 204, and 206; par. 0034, and 0036; note that the list of parameters is not exhaustive, and that any end to end parameter such as “Service Provider Virtual ID” can be inclusive of the list 204*);

communicating said at least one end to end network service parameter to a plurality of network service modules, each of said network service modules associated with a respective one of said forwarding domains (*par. 0037, and 0039; application 302 uses the parameter list 304, to choose a Network Service Component or Broker; it is important to realize that each Network Service Component or Broker represents a network service module and that each is associated with different domains [networks A, B, and C]; and*

establishing, by said network service modules, a communication path within each of said forwarding domains (*fig. 2; par. 0026, and 0027; in fig. 2, note the communication paths connecting networks A, B, and C to application 202*).

Although Nykanen discloses essential features of the claimed invention, Nykanen does not distinctly teach “establishing a communication path that provides network performance reflecting said at least one end to end network service parameter”.

In an analogous art, Rosu shows the technique of establishing communications paths in a multi-service network using data pertaining to at least one common performance parameter, evaluating the paths based on the parameter(s), and creating a performance graph for each type of path that is constructed from the data respectively acquired (*see Rosu; abstract, par. 0007, 0010, and 0020*). In an attempt to conveniently support dynamic route control, and to provide the scalability that is required for interconnected enterprise networks that are constantly growing, this intriguing combination of using network service parameter(s) extracted from network

application(s) to establish communications with multiple forwarding networks, in conjunction with the network performance analysis to reflect said network service parameter(s) makes sense.

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Rosu's teachings of establishing a communication path that provides network performance reflecting network service parameter(s) with the teachings of Nykanen, for the purpose of satisfying the *"...need for measurable common standards or criteria, which can be used to evaluate the end-to-end performance of any communication path which may be set up within a multi-service network..."* (See Rosu, par. 0004); thereby *"...enabling operations and maintenance staff to readily use and easily understand measurable standards; as they may not have advanced academic degrees, or equivalent high level of training"* (see Rosu, par. 0006).

In the Reply dated 01/28/2008, Applicants have submitted substantial amendment to the claim including the step of "said communication paths within each of said forwarding domains together providing an end to end communication path for a single virtual connection across all of said forwarding domains, such that wherein said communication paths within said forwarding domains are each required to provides network performance for communications over said virtual connection reflecting said at least one end to end network service parameter within their respective forwarding domains". Nonetheless, this feature s well known in the art and would have been

obvious modifications to the system taught by Nykanen and Rosu as evidenced by Graupner.

In an analogous art, Graupner discloses a network system that comprise several administrative domains with the ability to provide a forwarding path through, optimizing network performance over a virtual topology reflecting an end to end network service....(see Graupner, par. 0005-0008). Given this feature, a person of average skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Nykanen and Rosu, to employ this feature of Graupner, to obtain an overlay network for computer network with a plurality of nodes and an a plurality of network domains, thereby optimizing network performance as taught by Gaupner, par. 006, and 0012. By this rationale **claim 1** is rejected.

Regarding claims 2-25, the combination Nykanen-Rosu-Gaupner teaches:

2. The method of claim 1, further comprising:

obtaining a network service request from said application program, wherein said network service request includes said at least one end to end network service parameter (*see Nykanen; par. 0013, 0026, 0028, and 0045*);

determining, by said network service modules, whether said communication path within each of said forwarding domains can be established (*see Nykanen; par. 0026, 0037, and 0039; note that the web service components or modules have the task to determine based on the network services parameters whether or not application requests can be service, establishing a path with the selected network ; see also fig. 2*)

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to provide said network performance reflecting said at least one end to end network service parameter (see *Rosu par. 0007, 0010, and 0020*); and

in the event of a determination by said network service modules that said communication path within each of said forwarding domains cannot be established (see *Nykanen; par. 0036; note that the specific identity of the TE must be chosen the right way in order to find the proper location of the forwarding home network, otherwise communication is not establish*), to provide said network performance reflecting said at least one end to end network service parameter, denying said network service request from said application program (*as to the reflection of network performance, see Rosu par. 0007, 0010, and 0020; and of course, if there is no network services parameter transmitted to establish the path, the request from the application is logically ignored*).

3. The method of claim 1, further comprising establishing, by said network service modules, forwarding information enabling data packets to be forwarded between said communication paths within said forwarding domains (see *fig. 1, item 130 of Nykanen which substantially discloses an IP network, using Web services components; the IP network uses packets to carry voice, data and multimedia traffic, and thus must used packet switched network; also, note that Rosu specifically discloses in par. 0002 the data packets used to carry the information between the paths; note that in a multi-service network, different paths may comprise interconnections of different single communication services such as wireless and wireline telephone systems and internet*

access systems). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 3 is rejected.

4. The method of claim 1, further comprising:

determining, by each of said network service modules, network service capabilities of networking devices within said respective associated one of said forwarding domains (*see Nykanen; fig. 2, 0037, and 0048; the word best used in connection to the network service components to establish communication with the forwarding networks*); and

wherein said establishing of said communication path within each of said forwarding domains is responsive to said capabilities of said networking devices (*see Nykanen; fig. 2, 0037, and 0048*).

5. The method of claim 2, further comprising:

determining, by each of said network service modules, network service capabilities of networking devices within said respective associated one of said forwarding domains (*see Nykanen; fig. 2, 0037, and 0048*); and

wherein said determining whether said communication path within each of said forwarding domains can be established to provide said network performance reflecting said at least one end to end network service parameter is responsive to said capabilities of said networking devices (*see Rosu; abstract, par. 0007, 0010, and 0020*). The same

motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 5 is rejected.

6. The method of claim 1, further comprising:

receiving, by an application server program associated with said application program, a request for application service by an application client associated with said application program (*see Nykanen; par. 0025, 0040, and 0050*);

authenticating, by said application server program, said request for application service by said application client (*see Nykanen; par. 0035; note the identifying the identity of the owner, and gaining access to the services offered by the Network services modules through strong authentication methods*); and

in the even that said application server program authenticates said request for application service, obtaining a network service request from the application server portion of said application program, wherein said network service request includes said at least one end to end network service parameter (*see Nykanen; 0025, 0034, 0035, and 0037; it is well known in the art that application programs are hosted by application servers*).

7. The method of claim 3, further comprising:

maintaining, by each of said network service modules, an adjacency data structure describing adjacency relationships of said forwarding domains in said enterprise network (*see Nykanen; 0042; note that the matchmaking function 416 of*

lookup bean 414 can be used to find the next adjacent forwarding domain for packets passed between requester and receiver); and

wherein said establishing of said forwarding information enabling data packets to be forwarded between said communication paths within said forwarding domains is responsive to said adjacency relationships (see *Nykanen; 0042; also see Rosu par. 0002*).

8. The method of claim 1, wherein said at least one end to end network; service parameter *comprises* an amount of guaranteed bandwidth (see *Nykanen; 0036; fig. 2, item 204; note the presence of the cost function and its purpose. This function can be used to match bandwidth assignment with a predetermined amount*).

9. The method of claim 1, wherein said at least one end to end network service parameter comprises a level of acceptable packet loss (see *Rosu; 0008; and 0021; the successful connection percentage is the percentage of connections which result in actual communication. Thus, the performance graph shown in FIG. 3 provides very useful information, that is, the number of connections which are successful from the subscriber's point of view, and that the successful percentage is the measure of acceptable packet loss*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 9 is rejected.

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10. The method of claim 1, wherein said at least one end to end network service parameter comprises an indication of network reliability (*see Nykanen; 0036; see Rosu; abstract, 0008, 0020, and 0021*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 10 is rejected.

11. The method of claim 1, wherein said at least one end to end network service parameter comprises an indication of network delay (*Rosu; 0021*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 11 is rejected.

12. The method of claim 1, further comprising, subsequent to said establishing of said communication path within each of said forwarding domains, monitoring network performance of said communication path within each respective one of said forwarding domains by said associated network service module (*see Rosu; abstract, par. 0007, 0010, and 0020*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 12 is rejected.

13. A system for providing network services in an enterprise network, wherein said enterprise network includes a plurality of forwarding domains (*figs. 2 & 3*) comprising:
a plurality of network service modules, each of said network service modules associated with a respective one of said forwarding domains(*see Nykanen; figs. 2, items 204, and 206; par. 0034, and 0036; note that the list of parameters is not*

exhaustive, and that any end to end parameter such as "Service Provider Virtual ID" can be inclusive of the list 204), and wherein said network service modules are operative to: obtain at least one end to end network service parameter from an application program (see Nykanen; fig. 2; par. 0026, and 0027; in fig. 2, note the communication paths connecting networks A, B, and C to application 202); and

establish a communication path within each of said forwarding domains, wherein said communication path provides network performance reflecting said at least one end to end network service parameter (see Rosu; abstract, par. 0007, 0010, and 0020).

said communication paths within each of said forwarding domains together providing an end to end communication path for a single virtual connection across all of said forwarding domains, such that wherein said communication paths within said forwarding domains are each required to provides network performance for communications over said virtual connection reflecting said at least one end to end network service parameter within their respective forwarding domains". Nonetheless, this feature s well known in the art and would have been obvious modifications to the system taught by Nykanen and Rosu as evidenced by Graupner.

The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 13 is rejected.

14. The system of claim 13, further comprising:

a software module operative to obtain a network service request from said application program, wherein said network service request includes said at least one

end to end network service parameter (see *Nykanen*; par. 0013, 0026, 0028, and 0045);
and

wherein said network service modules are further operative to determine whether said communication path within each of said forwarding domains can be established (see *Nykanen*; par. 0026, 0037, and 0039; note that the web service components or modules have the task to determine based on the network services parameters whether or not application requests can be service, establishing a path with the selected network ; see also fig. 2) to provide said network performance reflecting said at least one end to end network service parameter (see *Rosu* par. 0007, 0010, and 0020); and

wherein said software module operative to obtain said network service request is further operable, in the event of a determination by said network service modules that said communication path within each of said forwarding domains cannot be established (see *Nykanen*; par. 0036; note that the specific identity of the TE must be chosen the right way in order to find the proper location of the forwarding home network, otherwise communication is not establish) to provide said network performance reflecting said at least one end to end network service parameter, deny said network service request from said application program (as to the reflection of network performance, see *Rosu* par. 0007, 0010, and 0020; and of course, if there is no network services parameter transmitted to establish the path, the request from the application is logically ignored). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 14 is rejected.

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15. The system of claim 13, wherein said network service modules are further operative to establish forwarding information in a plurality of networking devices enabling data packets to be forwarded between said communication paths within said forwarding domains (*see Rosu par. 0002; note that in a multi-service network, different paths may comprise interconnections of different single communication services such as wireless and wireline telephone systems and internet access systems. It is well known in art that the IP network uses packets to carry voice, data and multimedia traffic, and thus must be packet switched*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 15 is rejected.

16. The system of claim 13, wherein said network service modules are further operative to:

determine, by each of said network service modules, network service capabilities of networking devices within said respective associated one of said forwarding domains (*see Nykanen; fig. 2, 0037, and 0048; the word best used in connection to the network service components to establish communication with the forwarding networks*); and

wherein said establishment of said communication path within each of said forwarding domains is responsive to said capabilities of said networking devices (*see Nykanen; fig. 2, 0037, and 0048*).

17. The system of claim 14, wherein said network service modules are further operative to:

determine network service capabilities of networking devices within said respective associated one of said forwarding domains (*see Nykanen; fig. 2, 0037, and 0048*); and

wherein said determination of whether said communication path within each of said forwarding domains can be established to provide said network performance reflecting said at least one end to end network service parameter is responsive to said capabilities of said networking devices (*see Rosu; abstract, par. 0007, 0010, and 0020*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 10 is rejected.

18. The system of claim 13, further comprising:

a program module, operative to obtain a network service request from an application server portion of said application program, wherein said network service request includes said at least one end to end network service parameter in the event that said application server program authenticates a request for application service from an application client (*see Nykanen; 0025, 0034, 0035, and 0037*).

19. The system of claim 14, wherein said network service modules are further operative to:

maintain an *adjacency* data structure describing *adjacency* relationships of said forwarding domains in said enterprise network (*see Nykanen; 0042; note that the*

matchmaking function 416 of lookup bean 414 can be used to find the next adjacent forwarding domain for packets passed between requester and receiver); and

wherein said establishment of said forwarding information enabling data packets to be forwarded between said communication paths within said forwarding domains is responsive to said adjacency relationships (see *Nykanen; 0042; also see Rosu par. 0002*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 19 is rejected.

20. The system of claim 13, wherein said at least one end to end network service parameter comprises an amount of guaranteed bandwidth(see *Nykanen; 0036; fig. 2, item 204; note the presence of the cost function and its purpose. This function can be used to match bandwidth assignment with a predetermined amount*).

21. The system of claim 13, wherein said at least one end to end network service parameter comprises a level of acceptable packet loss (see *Rosu; 0008; and 0021*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 21 is rejected.

22. The system of claim 13, wherein said at least one end to end network service parameter comprises an indication of network reliability (see *Nykanen; 0036; see Rosu; abstract, 0008, and 0020*).

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23. The system of claim 13, wherein said at least one end to end network service parameter comprises an indication of network delay (*Rosu; 0021*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 10 is rejected.

24. The system of claim 13, wherein said network service modules are further operative to, subsequent to said establishing of said communication path within each of said forwarding domains, monitor network performance of said communication path within each respective one of said forwarding domains (*see Rosu; abstract, par. 0007, 0010, and 0020*). The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 24 is rejected.

25. A system for providing network services in an enterprise network, wherein said enterprise network includes a plurality of forwarding domains (*figs. 2 & 3*), comprising:

means for obtaining at least one end to end network service parameter from an application program (*see Nykanen; fig. 2; par. 0026, and 0027; in fig. 2, note the communication paths connecting networks A, B, and C to application 202*);

means for communicating said at least one end to end network service parameter to a plurality of network service modules, each of said network service modules associated with a respective one of said forwarding domains (*see Nykanen; par. 0037, and 0039; application 302 uses the parameter list 304, to choose a Network Service Component or Broker; it is important to realize that each Network Service*

Component or Broker represents a network service module and that each is associated with different domains [networks A, B, and C]); and

means for establishing, by said network service modules, a communication path within each of said forwarding domains, wherein said communication path provides network performance reflecting said at least one end to end network service parameter (see *Rosu; abstract, par. 0007, 0010, and 0020*). said communication paths within each of said forwarding domains together providing an end to end communication path for a single virtual connection across all of said forwarding domains, such that wherein said communication paths within said forwarding domains are each required to provides network performance for communications over said virtual connection reflecting said at least one end to end network service parameter within their respective forwarding domains". Nonetheless, this feature s well known in the art and would have been obvious modifications to the system taught by Nykanen and Rosu as evidenced by Graupner.

The same motivation that was utilized for the rejection of claim 1 is also valid for this claim. By this rationale, claim 25 is rejected.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914.

The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3301.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0800.

Jude Jean-Gilles

Patent Examiner

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/Nathan J. Flynn/

Supervisory Patent Examiner, Art Unit 2154